

WHAT IS CLAIMED IS:

1. A packet switching system comprising:

switching means accommodating a plurality of input/output ATM (Asynchronous Transfer Mode) lines;

packet destination determining means for determining the destination of a packet on a routing protocol; packet reassembling means for reassembling ATM cells to a packet;

cell assembling means for assembling ATM cells from a packet;

packet assigning means for assigning each packet to an output line set according to a content of a header of the packet in question;

VPC (Virtual Path Connection) setting means for setting up a VPC among the packet switching systems; and

VCC (Virtual Channel Connection) allocating means for allocating an idle VCC existing in said VPC to a plurality of packets sharing the same part of header.

2. A packet switching system according to claim 1, further comprising:

mapping means for mapping correspondence between a packet destination address and said VPC.

3. A packet switching system according to claim 2,

wherein, after the first packet of said plurality of packets sharing the same part of header has been transferred by said packet destination determining means, the second and subsequent packets are switched solely by said switching means without intervention of said packet destination determining means.

4. A packet switching system according to claim 3, wherein said plurality of packets assigned to the idle VCC have the same destination.

5. A packet switching system according to claim 3, wherein said plurality of packets assigned to the idle VCC have the same source and the same destination.

6. A packet switching system according to claim 3, wherein said plurality of packets assigned to the idle VCC have the same application identifier.

7. A packet switching network for switching packets on a routing protocol and comprising a first and a second packet switching system,

wherein said first packet switching system includes: switching means accommodating a plurality of input/output ATM lines;

packet destination determining means for determining the destination of a packet on said routing protocol;

packet reassembling means for reassembling ATM cells to packet;

cell assembling means for assembling ATM cells from a packet;

VPC setting means for setting up a VPC among the packet switching systems;

mapping means for mapping correspondence between a packet destination address and said VPC; and

VCC allocating means for allocating an idle VCC existing in said VPC to a plurality of packets sharing the same part of header, and

wherein said second packet switching system includes: switching means accommodating a plurality of input/output ATM lines; and

VPC setting means for setting up a VPC among the packet switching systems; and

wherein said first and said second packet switching system are located in the peripheral part and in the inner part of said packet switching network respectively.

8. A packet switching network for switching packets on a routing protocol and comprising a first and a second

packet switching system,

wherein said first packet switching system includes:

switching means accommodating a plurality of input/output ATM lines;

packet destination determining means for determining the destination of a packet on said routing protocol;

packet reassembling means for reassembling ATM cells to a packet;

cell assembling means for assembling ATM cells from a packet;

VPC setting means for setting up a VPC among the packet switching systems;

mapping means for mapping correspondence between a packet destination address and said VPC; and

VCC allocating means for allocating an idle VCC existing in said VPC to a plurality of packets sharing the same part of header,

wherein said second packet switching system includes:

switching means accommodating a plurality of input/output ATM lines; and

VPC means for setting up a VPC among the packet switching systems, and

wherein said first packet switching system is

located in the peripheral part of said packet switching network, and said first and said second packet switching system are located in the inner part of said packet switching network.

9. A packet switching network according to claim 7 or 8, wherein, after the first packet of said plurality of packets sharing the same part of header inputted to said first packet switching system has been transferred by said packet destination determining means, the second and subsequent packets inputted to said first packet switching system as well as the packets input to said second packet switching system are switched solely by said switching means without intervention of said packet destination determining means.

10. A packet switching system according to claim 7 or 8, wherein said VPC is formed by multiplexing VCCs having the same QOS (Quality Of Service).

11. A packet switching method for switching packets using packet switching systems on a routing protocol, the method comprising the steps of:

storing into first storing means correspondence between the destination and the output line of an input ATM

cell and a VCC;

storing correspondence between a destination address and VPC into second storing means on said routing protocol;

storing correspondence between a part of header of packet and a VCC into third storing means;

switching ATM cells by use of an ATM switch on the basis of the destination stored in said first storing means upon receipt of the cells which are assembled from a packet;

reassembling ATM cells to a packet;

retrieving said third storing means;

assembling ATM cells from a packet if the correspondence of the part of header of packet is stored in said third storing means, the ATM cells being transferred by use of said ATM switch over a first VCC registered for the correspondence; and

retrieving said second storing means if the correspondence of the part of header of packet is not stored in said third storing means,

wherein the VPC corresponding to said destination address is assigned a second VCC, the correspondence between the part of header of packet and said second VCC is stored into said third storing means, and ATM cells are assembled from the packet in question and are transferred by use of said ATM switch over said second VCC.

12. A packet switching method according to claim 8, further comprising the steps of:

setting said VCC that corresponds to the destination and the output line of each of input ATM cells which are assembled from the packet as a VCC for cut-through by updating said first storing means after the correspondence between the part of header of packet and said second VCC has been stored into said third storing means;

retrieving said first storing means upon receipt of ATM cells which are assembled from a packet; and

transferring the ATM cells by use of said ATM switch over said second VCC if the destination and the output line of the received ATM cell corresponds said VCC for cut-through.